

CLAIMS

What is claimed is:

1. A hollow fan blade detail half comprising:

a substrate having a root edge and an opposite tip spaced radially outward from the root, the substrate further including a leading edge opposite a trailing edge, the leading edge spaced chordwise from the trailing edge; and

a plurality of curved ribs formed on the substrate.
2. The hollow fan blade detail half of claim 1 wherein the plurality of ribs extend substantially parallel and substantially radially in a region adjacent the root edge.
3. The hollow fan blade detail half of claim 2 wherein the plurality of ribs includes a first subset and a second subset of ribs, wherein the first subset of ribs curves toward the leading edge and wherein the second subset of ribs curves toward the trailing edge.
4. A hollow fan blade including a pair of joined hollow fan blade detail halves according to claim 3 wherein ribs in one of the pair of hollow fan blade detail halves are joined to corresponding ribs in the other of the pair.
5. A gas turbine engine including a plurality of the hollow fan blades of claim 4.

6. The hollow fan blade detail half of claim 1 wherein each of the plurality of ribs is formed between elongated continuous curved cavities in the substrate.

7. The hollow fan blade detail half of claim 6 wherein the elongated cavities on either side of each of the plurality of ribs are continuous with one another around at least one end of the rib.

8. A hollow fan blade comprising:

a first substrate having a root edge and an opposite tip spaced radially outward from the root, the substrate further including a leading edge opposite a trailing edge, the leading edge spaced chordwise from the trailing edge; and

a second substrate; and

a plurality of curved cavities between the first and second substrates.

9. The hollow fan blade of claim 8 wherein each of the plurality of cavities is formed adjacent at least one elongated continuous curved rib.

10. The hollow fan blade of claim 9 wherein the elongated cavities are formed on either side of each of the plurality of ribs and wherein at least one of the cavities extends continuously around at least one end of one of the ribs.

11. The hollow fan blade of claim 10 wherein the plurality of ribs extend substantially parallel and substantially radially in a region adjacent the root edge, wherein the plurality of ribs includes a first subset and a second subset of ribs, wherein the first subset of ribs curves toward the leading edge and wherein the second subset of ribs curves toward the trailing edge.

12. A method for making a hollow fan blade including the steps of:
- a. machining a plurality of curved, continuous cavities on a first substrate to form a plurality of curved ribs with the cavities on either side of each of the plurality of ribs; and
 - b. abutting the plurality of ribs on the first substrate with a second substrate to form a hollow fan blade.

13. The method of claim 12 further including the step of forming a plurality of ribs on the second substrate and wherein said step b) further includes the step of abutting the ribs on the first substrate with the ribs on the second substrate.

14. The method of claim 12 wherein the plurality of ribs do not intersect one another.

15. The method of claim 12 wherein each of the plurality of ribs is not intersected by any other ribs between its opposite ends.

16. The method of claim 15 wherein the plurality of ribs are substantially parallel in a region adjacent a root edge.

17. The method of claim 12 wherein said step a) further includes the step of machining at least a subset of the plurality of continuous cavities from a root edge of the substrate in a curved path toward a leading edge of the substrate.

18. The method of claim 12 wherein said step a) further includes the step of machining at least a first subset of the plurality of continuous cavities as a single continuous serpentine path on either side of each of at least a first subset of the plurality of ribs.